IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of
HUBERT CECILE FRANCOIS MARTENS, ET AL.

Atty. Docket: NL 020573

Confirmation No. 8862

Serial No. 10/517,917

Group Art Unit: 2627

Filed: DECEMBER 14, 2004

Examiner: HEYI, Henok G.

Title: OPTICAL DATA STORAGE MEDIUM AND USE OF SUCH MEDIUM

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United States Patent and Trademark Office
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APPEAL BRIEF

Sir:

Appellants herewith respectfully present a Brief on Appeal as follows, where a Notice of Appeal is concurrently filed:

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee of record Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

Appellants and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1, 4-10 and 12 are pending in this application, where claims 2-3 and 11 are canceled. Claims 1, 4-10 and 12 are rejected in the Final Office Action mailed on March 26, 2010. Claims 1, 4-10 and 12 are the subject of this appeal.

STATUS OF AMENDMENTS

Appellants did not file a Response to a Final Office Action mailed March 26, 2010. This Appeal Brief is in response to the Final Office Action mailed March 26, 2010 that finally rejected claims 1, 4-10 and 12.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention, for example, as recited in independent claim 1, shown in FIG 3, and described on page 6, lines 3-5 of the specification, is directed to a multi-stack optical data storage medium 30 for recording and reading using a focused radiation beam having a wavelength of 655 nm entering through an entrance face 41 of the medium during recording and reading. As shown In FIG 3, and described in the specification on page 6, lines 5-9, the medium 30 includes a first substrate 31a having, on a side thereof, a first recording stack L_0 33 comprising a recordable type L_0 recording layer 35 comprising a dye, and formed in a first L_0 guide groove 38a, and a first reflective layer 39 between the L_0 recording layer 35 and the first substrate 31a. Further, as shown in FIG 3, and described in the specification on page 6, lines 9-12, the medium further includes a second substrate 31b having, on a side thereof, a second recording stack L_1 32 comprising a recordable type L_1 recording layer 34, where the second recording stack 32 is at a position closer to the entrance face 41 than the L_0 recording stack 33 and is formed in a second L_1 guide groove 37. In addition, as shown in FIG 3, and described in the specification on page 6, lines 13-14, the medium 30 includes a transparent spacer layer 36 sandwiched between the first and second recording stacks 32, 33, where the transparent spacer layer 36 has a thickness substantially larger than the depth of focus of the focused radiation beam. As described on page 3, lines 26-27, page 7, lines 9-10 and page 8, lines 6-7 and 18-19 of the specification, the first L_0 guide groove 38a has a depth G_{L0} in the range 25 nm < G_{L0} < 40 nm, and the

first reflective layer 39 comprises a metal and has a thickness > 50 nm, where the first L_0 guide groove 38a has a full half maximum width W_{L0}< 350 nm.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 4-10 and 12 of U.S. Patent Application Serial No. 10/517,917 is unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 5,764,619 (Nishiuchi) in view of U.S. Patent Application Publication No. 2002/0006105 (Usami).

ARGUMENT

Claims 1, 4-10 and 12 are said to be unpatentable under 35 U.S.C. §103(a) over Nishiuchi and Usami.

Appellants respectfully request the Board to address the patentability of independent claim 1 and further claims 4-10 and 12 as depending from claim 1, based on the requirements of independent claim 1. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, Appellants herein specifically reserve the right to argue and address the patentability of claims 4-10 and 12 at a later date should the separately patentable subject matter of claims 4-10 and 12 later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of claim 1 is not intended as a waiver of Appellants' right to argue the patentability of the further claims and claim elements at that later time.

Nishiuchi is directed to an optical information recording medium having at least two information layers and guide grooves for tracking. A first information layer, formed by a thin film for reflecting a portion of a light beam made incident on the first substrate and permitting penetration of a portion of the light beam, is formed on a surface of the first substrate. A second information layer having a reflectance higher than that of the first information layer is formed on a surface of a second substrate. As correctly noted on page 4, lines 3-4 of the Office Action, Nishiuchi does not disclose or suggest that the "first L_0 guide groove has a depth G_{L0} in the range 25 nm < G_{L0} < 40 nm," as recited in independent

claim 1. Usami is cited in an attempt to remedy the deficiencies in Nishiuchi.

Usami is directed to an optical data recording medium having a single recording layer. The Usami recording medium has a transparent substrate in which a pre-groove having a depth of 20 to 100 nm and a width of 400 to 630 nm is formed. (See paragraphs [0009]-[0010]) A single dye recording layer is provided having a thickness at a groove portion of 50 to 160 nm and a thickness at a land portion of at least 80% of the thickness at the groove portion.

It is respectfully submitted that Nishiuchi, Usami, and combination thereof, do not disclose or suggest the present invention as recited in independent claim 1 which, amongst other patentable elements, recites (illustrative emphasis provided):

> wherein the first L_0 guide groove has a **depth G_{L0} in the range 25 nm < G_{L0} < 40 nm**, and the first reflective layer comprises a metal and has a thickness > 50 nm, and wherein the first L_0 guide groove has a **full half maximum width W_{L0}< 350 nm**.

The particular **combination** of the groove depth G_{L0} and the groove width W_{L0}, namely, 25 nm < G_{L0} < 40 nm **and** W_{L0}< 350 nm, is nowhere disclosed or suggested in Nishiuchi, Usami, and combination thereof. Rather, Nishiuchi discloses on column 47 line 45 that the groove depth is 50nm, without a corresponding groove width. Further, Nishiuchi specifically recites on column 20, lines 59-60, a pit width W13 of 300nm and a depth of 90nm. In addition, Usami discloses a pre-groove having a depth of 20 to 100 nm, with a width of 400 to 630 nm, as recited in paragraphs [0009]-[0010]. There is no apparent reason in the prior art for one skilled in the art to suggest a multi-stack optical data storage

medium having the particular groove recited in independent claim 1, namely a groove having a depth G_{L0} of $25\text{ nm} < G_{L0} < 40\text{ nm}$ **and** a width of $W_{L0} < 350\text{ nm}$.

At best, the combination of Nishiuchi and Usami discloses a groove depth of 50nm, without a corresponding groove width; and a pit having a width W13 of 300nm and a depth of 90nm. As described on page 3, lines 28-29 of the present application, "[w]hen grooves are relatively wide, e.g. 500-600 nm, groove depths of close to 100 nm may be feasible with still enough reflection." Thus, the pit of Nishiuchi having a width W13 of 300nm and a depth of 90nm is likely to not have enough reflection as the 90nm is too thick relative the narrow width of 300nm. To have a proper reflection, the combination of both groove depth and groove width is important, where the particular **combination** of the groove depth G_{L0} between $25\text{ nm} < G_{L0} < 40\text{ nm}$ **and** a groove width W_{L0} of $W_{L0} < 350\text{ nm}$, as recited in independent claim 1, is nowhere disclosed or suggested in Nishiuchi, Usami, and combination thereof. Accordingly, it is respectfully requested that independent claim 1 be allowed. In addition, it is respectfully submitted that claims 4-10 and 12 should also be allowed at least based on their dependence from amended independent claim 1.

In addition, Appellants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, Appellants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

CONCLUSION

Claims 1, 4-10 and 12 are patentable over Nishiuchi and Usami.

Thus, the Examiner's rejections of claims 1, 4-10 and 12 should be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

1.(Previously Presented) A multi-stack optical data storage medium for recording and reading using a focused radiation beam having a wavelength of 655 nm entering through an entrance face of the medium during recording and reading, comprising:

a first substrate having, on a side thereof, a first recording stack L_0 comprising a recordable type L_0 recording layer comprising a dye, and formed in a first L_0 guide groove, and a first reflective layer present between the L_0 recording layer and the first substrate;

a second substrate having, on a side thereof, a second recording stack L_1 comprising a recordable type L_1 recording layer, said second recording stack being at a position closer to the entrance face than the L_0 recording stack and formed in a second L_1 guide groove; and

a transparent spacer layer sandwiched between the first and second recording stacks, said transparent spacer layer having a thickness substantially larger than the depth of focus of the focused radiation beam,

wherein the first L_0 guide groove has a depth G_{L0} in the range 25 nm < G_{L0} < 40 nm, and the first reflective layer comprises a metal and has a thickness > 50 nm, and wherein the first L_0 guide groove has a full half maximum width W_{L0}< 350 nm.

Claims 2-3 (Canceled)

4.(Previously Presented) The multi-stack optical data storage medium as claimed in claim 1, wherein the recordable type L_0 recording layer has a thickness between 70 nm and 150 nm measured on the land portion of the guide groove.

5.(Previously Presented) The multi-stack optical data storage medium as claimed in claim 1, wherein said multi-stack optical data storage medium further comprises a dielectric layer present at a side of the L_0 recording layer opposite from the side where the first reflective layer is present.

6.(Previously Presented) The multi-stack optical data storage medium as claimed in claim 5, wherein the dielectric layer has a thickness in the range of 5 nm – 120 nm.

7.(Previously Presented) The multi-stack optical data storage medium as claimed in claim 1, wherein said multi-stack optical data storage medium further comprises a second reflective layer comprising a metal present at a side of the L_0 recording layer opposite from the side where the first reflective layer is present.

8.(Previously Presented) The multi-stack optical data storage medium as claimed in claim 7, wherein the second reflective layer has a thickness in the range of 5 nm -15 nm.

9.(Previously Presented) The multi-stack optical data storage medium as claimed in claim 7, wherein the second reflective layer mainly comprises a metal selected from the group of Ag, Au, Cu, Al.

10.(Previously Presented) The multi-stack optical data storage medium as claimed in claim 1, wherein the effective reflection level of the stacks is at least 0.18 at a radiation beam wavelength of approximately 655 nm.

Claim 11 (Canceled)

12.(Previously Presented) The multi-stack optical data storage medium of claim 1, wherein the multi-stack optical data storage medium has a modulation M of 75% and a reflection level of 70%, and wherein the modulation is $M = (R_{no\text{-}mark}-R_{mark})/R_{no\text{-}mark}$, R_{mark} and $R_{no\text{-}mark}$ being reflection levels from a read out laser beam when respectively a written mark and no mark are present.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None